

REMARKS

Claims 1-10 remain in the application and are presented for examination and reconsideration. Claims 12-20 have been withdrawn from consideration. Claim 11 has been cancelled. Claim 1 has been amended to correct an obvious editorial error. Applicants note that the drawings received on December 29, 2003, have been found to be acceptable. Support for the substantive amendment to Claim 1 is found on page 1, lines 28-29, of the specification as filed. No new matter has been introduced.

CLAIM OBJECTION

The Examiner has noted an incorrect word in Claim 1. The Applicants have hereby substituted the word "least," for the word, -- last --, and accordingly, the Examiner is respectfully requested to withdraw the objection to Claim 1.

REJECTION UNDER 35 U.S.C. 102(b)  
OVER U.S. PATENT NO. 4,181,747

The Examiner has rejected Claims 1-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,181,747 to Kickle et al. (herein the '747 patent). Applicants respectfully traverse this rejection for the following reasons. The Examiner has assumed that the fiber products of Claims 1-9 are identical with the products of the '747 patent. There is no disclosure in the '747 patent regarding fiber products having the characteristics required by the claims of the present application.

In support of this contention, Applicants have repeated Example II of the '747 patent in order to establish that the products of the '747 patent are not encompassed by the claims of the Applicants' invention. This was shown in a Declaration under 37 C.F.R. 1.132 prepared by Dr. Satyavolu, a co-inventor of the present application. As shown in the Declaration, the product of Example II of the '747 patent has a cellulose content of 41.72%. The products of the claims of Applicants' invention must have at least 50% cellulose. Thus, the products of the '747 patent are not encompassed by the presently claimed invention, and the claimed invention is not anticipated by the '747 patent.

In response to the Declaration, the Examiner stated that the showing was not commensurate in scope with the reference. In fact, it was suggested that the use of a different acid, such as in Example III of the '747 patent, would have been more appropriate since it would have been expected that the cellulose content would be greater than was found for Example II.

According to the '747 patent, Example III was carried out in the same manner as Example II, except that hydrochloric acid was substituted for sulfuric acid, and the pH was maintained in the range of 3.5 to 5.0.

The process conditions utilized in Example III are shown to be the same as the conditions in Example II, except for the different acids that were employed. Under the process conditions used in the examples, Applicants did not believe that the sole replacement of sulfuric acid with hydrochloric acid, would result in a substantially higher cellulose content in the acid treated soy hulls. This expectation was supported additionally by the observations concerning the product produced by Example III, as stated in Example III of the '747 patent.

More particularly, as stated in Example III, of the '747 patent, at column 4, lines 33-37, the characteristics of the product prepared using hydrochloric acid were similar to the characteristics of the product of Example II prepared using sulfuric acid. As stated in Example III, the product obtained using hydrochloric acid met all the same microbiological specifications, as the product of Example II, produced using sulfuric acid. Further, it is stated that the color of the product of the sulfuric acid produced product was slightly better than the color of the product produced using hydrochloric acid. The flavor of the product produced using hydrochloric acid was bland, and the odor was good. This is similar to the product of Example II, produced using sulfuric acid, that is described at column 4, lines 22-23, as having a bland flavor and a good odor.

Notwithstanding the conclusion that one of ordinary skill in the art could reach as described above, Dr. Satyavolu repeated Example III of the '747 patent. This was done to provide factual evidence that use of an acid, other than sulfuric acid, as shown in Example II, would not provide products encompassed by the claims of the Applicants' invention. In the instance of Example III, the acid utilized was hydrochloric acid. The results of repeating Example III of the '747 patent, are described in the enclosed Declaration under 37 C.F.R. 1.132 prepared by Dr. Satyavolu. As shown in the Declaration, the product of Example III of the '747

patent has a cellulose content of 42.4%, dry basis. The products of the claims of Applicants' invention must have at least 50% cellulose. Accordingly, the product of Example III of the '747 patent has also been factually shown as falling outside of the presently claimed invention. Thus, Applicants contend there has been provided a sufficient showing to establish that the products of the '747 patent are not encompassed by the present claims, and the claimed invention is not anticipated by the '747 patent.

The Examiner has mentioned the possibility of using a weaker acid in the process of the '747 patent. It is Applicants' contention that the use of a weaker acid such as citric acid or acetic acid, would expect to result in a lower cellulose content, in the acid treated fiber, as compared to the cellulose content of the sulfuric acid treated fiber, or the hydrochloric acid treated fiber.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of Claims 1-9, under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,181,747.

REJECTION UNDER 35 U.S.C. 102(b)  
OVER U.S. PATENT NO. 5,023,103

The Examiner has rejected Claims 1, and 7-9, under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,023,103 to Ramaswamy (herein the '103 patent). Applicants respectfully traverse this rejection for the following reasons.

Applicants disagree with the Examiner's representation of the disclosure of the process of the '103 patent. In particular, the Examiner has stated that the '103 patent describes a process for treating oat hulls with an acid to produce a dietary product, and makes reference to the Abstract and column 5, lines 40-44 of the '103 patent.

To the contrary, the '103 patent, in the Abstract, clearly states that, "the dietary fiber is formed by subjecting ground oat hulls to an alkaline digestion at elevated temperatures and pressures." There is no concept or mention of using any acid to form the dietary fiber from the oat hulls.

Applicants do agree with the Examiner's statement regarding the disclosure at column 5, lines 40-44, of the '103 patent. It is stated that the bleached fibers are neutralized with an acid. However, as described and claimed the dietary fiber is produced without any acid treatment involved in the process. Indeed none of the 8 claims of the '103 patent mentions the presence of

an acid. As stated the acid mentioned in the '103 patent is used solely for the purpose of neutralizing dietary fiber that has been bleached.

As presently amended, Claim 1 clearly states that the fiber product of the present claims is a seed based fiber that has been treated with an acid to reduce the lignin content of the seed based fiber. This effect resulting from the acid treatment of the seed based fiber is clearly shown in the specification, at page 1, lines 28-29. There can be no doubt concerning the meaning of the term, "treatment" as applied to the seed based fiber, in the present claims.

From this, it should be apparent that the acid treatment of the present application is not an incidental feature. The acid treatment of the present application is defined as a process that results in the seed based fiber having a reduced lignin content. This effect is not, in any way, similar to a neutralization reaction.

Accordingly, Applicants contend that there is no reasonable basis provided by the process of the '103 patent for one to conclude that the products produced by the process of the '103 patent would be encompassed by the claims of the present invention. Therefore, the Examiner is respectfully requested to withdraw the rejection of Claims 1, and 7-9, under 35 U.S.C. 102(b), as being anticipated by U.S. Patent No. 5,023,103.

REJECTION UNDER 35 U.S.C. 102(b)  
OVER U.S. PATENT NO. 6,110,323

The Examiner has rejected Claims 1-10, under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,110,323 to Marsland (herein the '323 patent). Applicants respectfully traverse this rejection for the following reasons.

The Examiner has stated that the '323 patent discloses treating agricultural waste that includes oat hulls, corn and the like by acid hydrolyzing followed by delignification, and directs attention to column 2, line 50 through column 3, line 10, of the '323 patent. From this, the Examiner concluded that the products of the '323 patent would be encompassed by the claims of Applicants' present application.

By the present amendment, Applicants have hereby specified that the only products included within the claims of the present application are fiber products that have at least 5% hemicellulose. Thus, the products of the '323 patent are significantly different from the fiber

products of the Applicants' claimed products. This is readily apparent from the description provided in the '323 patent of the products produced. In particular, attention is directed to column 2, line 4, of the '323 patent where it is stated clearly that the acid hydrolysis step of the process for treating agricultural waste, "dissolves the hemicellulose," of the agricultural waste. Further, at column 2, lines 13-17, of the '323 patent, it is stated that the solid residue product resulting from the acid hydrolysis step contains primarily lignin and cellulose. There is no mention of hemicellulose content in the solid residue product. The solid residue product is then delignified, with the remaining solids having a crude fiber and total dietary fiber content. Applicants contend that one of ordinary skill in the art would not regard this statement as a disclosure of a fiber product having any content of hemicellulose, let alone a fiber product having at least 5% hemicellulose.

In more detail, the '323 patent relates to a process for producing absorbent cellulose. Under the Summary of the Invention Section, the invention is set forth concisely at column 1, line 59 – column 2, line 16, of the '323 patent. It is said that the invention consists generally of the acid hydrolysis of a starting material, followed by delignification of the remaining solids. The process includes acid hydrolyzing a starting material for the purpose of dissolving the hemicellulose (see column 2, line 4). By dissolving the hemicellulose, it is apparent the '323 process intends to remove the hemicellulose from the solid residue portion of the acid hydrolysis step that is to be retained. Without more information provided by the '323 patent, one of ordinary skill in the art would conclude that the '323 patent relates to a process where all the hemicellulose is to be dissolved and separated from the desired cellulose product.

The process of the '323 patent, once the hemicellulose is separated by dissolution, is then continued, to recover the desired cellulose. The next step involves treating the hemicellulose – free solid residue of the acid hydrolysis step, that contains primarily lignin and cellulose, to delignify the solid residue. Once the solid residue has been delignified, the remaining solids, that can only be the cellulose, is obtained. There is neither any disclosure nor even suggestion, that the desired cellulose product of the '323 patent would have any hemicellulose content.

Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of Claims 1-10, under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,110,323.

REJECTION UNDER 35 U.S.C. 103 (a)

The Examiner has rejected Claim 10, under 35 U.S.C. 103(a), as being unpatentable over U.S. Patent No. 4,181,747 to Kickle, et al. (herein the '747 patent) in view of the U.S. Patent No. 5,023,103 to Ramaswamy (herein the '103 patent). Applicants respectfully traverse this rejection for the following reasons.

As mentioned herein, the fiber product of Claim 1, upon which Claim 10 is dependent, is not described in the '747 patent. This has been established by the two Declarations of Dr. Satyavolu under 37 C.F.R. 1.132, and the other statements herein. Therefore, combining the teaching of the '103 patent with that of the '747 patent still fails to obtain the fiber products encompassed by Applicants' claimed invention. The dependent Claim 10 incorporates all the requirements of the Claim 1 from which it depends, and, therefore, Claim 10 is not rendered obvious by the combination of the disclosures of the '747 patent and the '103 patent.

Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of Claim 10, under 35 U.S.C. 103 (a), over U.S. Patent No. 4,181,747 in view of U.S. Patent No. 5,023,103.

CONCLUSION

Applicants believe the application is in condition for allowance. Accordingly, in view of the foregoing Declaration under 37 C.F.R. 1.132, amendments and remarks, the Examiner is respectfully requested to withdraw the rejections of Claims 1-10. Applicants submit that Claims 1-10 are patentable, and respectfully request the Examiner to pass the application to issue.

Respectfully submitted,

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Date: August 18, 2004

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